DRINKING WATER

PUBLIC DRINKING WATER QUALITY

Indicator 2. Public Drinking Water Quality

Background While public drinking water in the United States is considered among the safest in the world, its safety cannot be taken for granted. Violations of Safe Drinking Water Act standards continue to occur in Kentucky and pose risks to public health. Most violations occur at smaller drinking water facilities. The most common drinking water contaminants detected in Kentucky are bacteria (an indication water may be contaminated with fecal matter); turbidity or cloudiness (which can interfere with the treatment process and allow pathogens to survive); trihalomethanes (organic chemicals created during the disinfection of water with chlorine); and inorganic chemicals (which include nitrates, mercury and barium).

Goal Ensure public drinking water can be safely consumed by meeting Safe Drinking Water Act rules and regulations that specify 103 health-based Maximum Contaminant Levels (MCLs).

At a Glance

Violations of drinking water MCL standards
1995 84
1999 48

Number of systems with MCL violations
1995 39
2000 30

Progress Trends reveal that violations of drinking water health-based MCL standards have been declining significantly during the past 15 years in Kentucky. Of the 656 public drinking water systems operating in the state, 4 percent, or 30 systems, had violations of MCLs during 2000. The MCL violations in 2000 included the following contaminants: bacteriological (10), turbidity (16) and trihalomethanes (22).

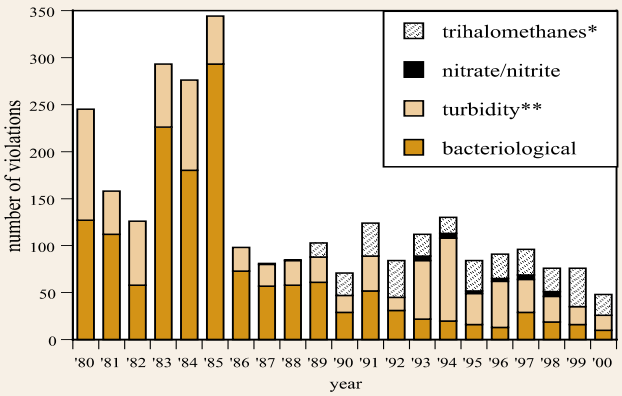
There are several facilities that are persistent violators of MCL standards. During 2000, an estimated 8,713 Kentuckians were at risk from 15 public drinking water systems with persistent violations of bacteria and turbidity standards. This is a significant improvement since 1997 when 27 systems serving 38,799 customers were considered persistent violators of bacteria and turbidity standards.

A majority of violations cited at drinking water plants are resolved; however, some result in fines. During 2000, three public drinking water systems were fined a total of $4,000.

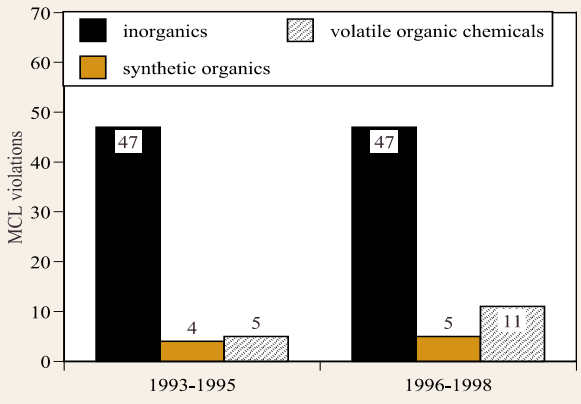
Kentucky periodically conducts testing for various organic and inorganic chemicals as required by federal and state law. The most recent round of testing conducted between 1996 and 1998 found 63 violations of drinking water standards, a majority of which were for inorganic chemicals. The more common pollutants detected included naturally occurring chemicals such as nitrates, barium and cadmium; trihalomethanes, a disinfection by-product; pesticides such as atrazine, simazine, metolachlor and bromomethane; and chemical solvents including dibromomethane, xylene, trichloroethylene and tetrachloroethylene.

In January 2001, the U.S. EPA published a new standard for arsenic in drinking water that requires public water supplies to reduce arsenic to 10 parts per billion (ppb) by 2006. The new standard was based on a report by the National Academy of Sciences that concluded the current standard does not adequately protect public health. Arsenic in water has been linked to bladder, lung and skin cancer and may cause kidney and liver cancer, birth defects and reproductive problems. Arsenic also harms the central nervous

Measure 1. Public Drinking Water Standard Violations in Kentucky

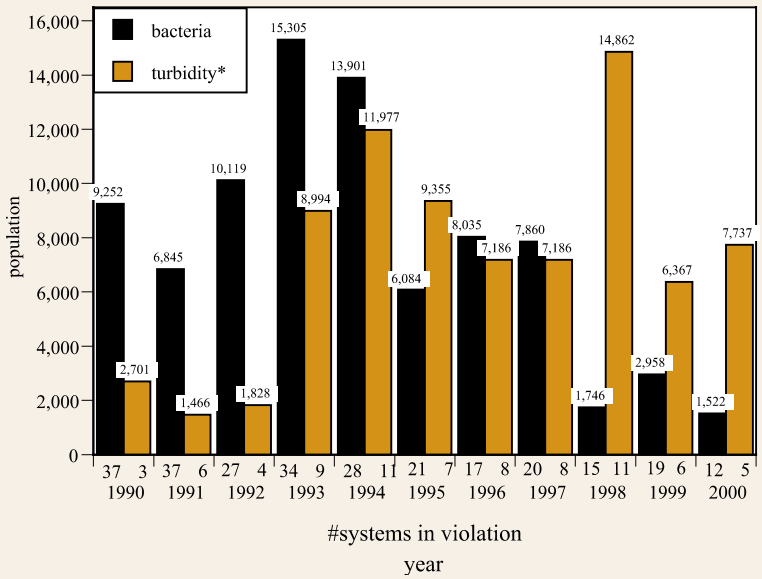


Measure 2. Public Drinking Water Standard Violations in Kentucky (Phase II and V Contaminants)



Public Drinking Water Quality

Measure 3. Population Served by Public Water Systems in Kentucky with Persistent Violations



Measure 5. Drinking Water Fines in Kentucky

Year	#Systems	$Fines*
1990	11	$41,585
1991	18	$59,950
1992	28	$69,825
1993	22	$71,125
1994	31	$62,300
1995	24	$44,375
1996	19	$66,850
1997	10	$16,950
1998	15	$33,600
1999	10	$29,700
2000	3	$4,000

Measure 4. Persistent Water System Violators of Safe Drinking Water Act Standards (2000)

Water System	County	Population Served
Kettle Island Water System*	Bell	396
Hillside Trailer Park	Boone	150
Shouses Mobile Home Park	Breathitt	35
Oakdale Christian H.S.	Breathitt	60
Shady Oak Trailer Park	Calloway	277
Dogwood Resort	Calloway	130
Kentucky Beach Resort	Calloway	85
Cumberland Co. Water District	Cumberland	5,200
Knott Co. Water District	Knott	283
Evarts Municipal	Harlan	1,708
Blue Diamond Camp*	Harlan	59
Jackhorn Water Supply*	Letcher	200
Bills Place	Owen	40
Fairview Grocery	Owen	40
Front Porch Store	Perry	50
Total 15		**8,713**

system and heart. Testing in Kentucky detected arsenic in 150 of the 239 public water systems sampled, with 15 having detections exceeding the proposed arsenic 10 ppb MCL in finished water. Two systems had more than one sample exceeding the proposed arsenic standard. The U.S. EPA is now reviewing this standard to ensure it is based on sound science and accurate cost estimates.[1] Approximately 90 percent of industrial arsenic in the U.S. is currently used as a wood preservative.[2] Agricultural applications, mining and smelting also contribute to arsenic releases in the environment.

Footnotes

1. "EPA Administrator Whitman Establishes Process to Evaluate Arsenic in Drinking Water Standard," U.S. EPA press release, April 18, 2001.

2. Drinking Water Standard for Arsenic, U.S. EPA , 815-F-00-015, January 2001.

Measures - notes and sources

***Measure 1**. Based on violations of Maximum Contaminant Levels (MCLs). *Trihalomethane monitoring not required prior to 1989. **More stringent turbidity standards took effect in 1993. Does not include monitoring and reporting violations for Phase II and V contaminants. Source: Ky. Division of Water.*

***Measure 2**. Based on Phase II and V testing. Source: Ky. Division of Water.*

***Measure 3**. Persistent violators are systems with four or more monitoring or MCL violations in any 12-month period. *More stringent turbidity standards took effect in 1993. Source: Ky. Division of Water.*

***Measure 4**. As of December 2000. Persistent violators are systems with four or more monitoring or MCL violations in any 12-month period for bacteria and/or turbidity. Some systems have both turbidity and bacterial violations. *Indicates system was also reported in violation in EQC 1998 report. Source: Ky. Division of Water.*

***Measure 5**. *Includes total civil and performance penalties assessed by calendar year. Source: Ky. Division of Water.*